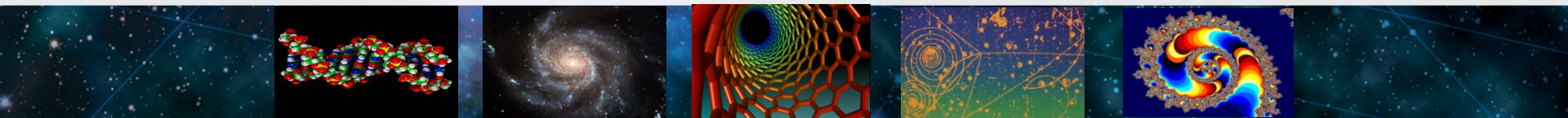


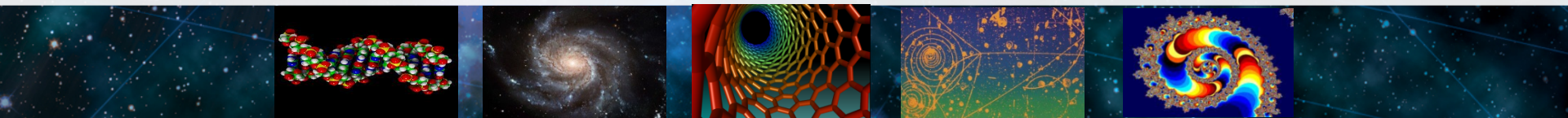


# **Mathematical and Physical Sciences Advisory Committee (MPSAC)**

**F. Fleming Crim  
Assistant Director  
July 18, 2013**



# IceCube Opens a New Era in Astrophysics Observation

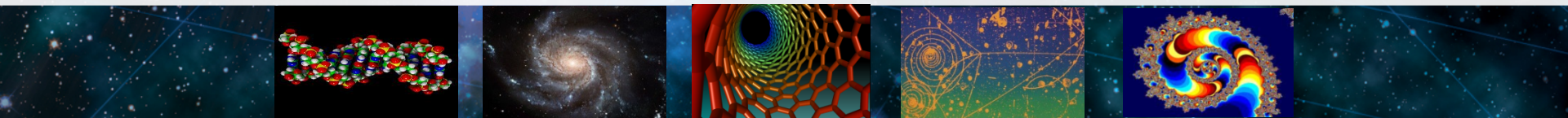
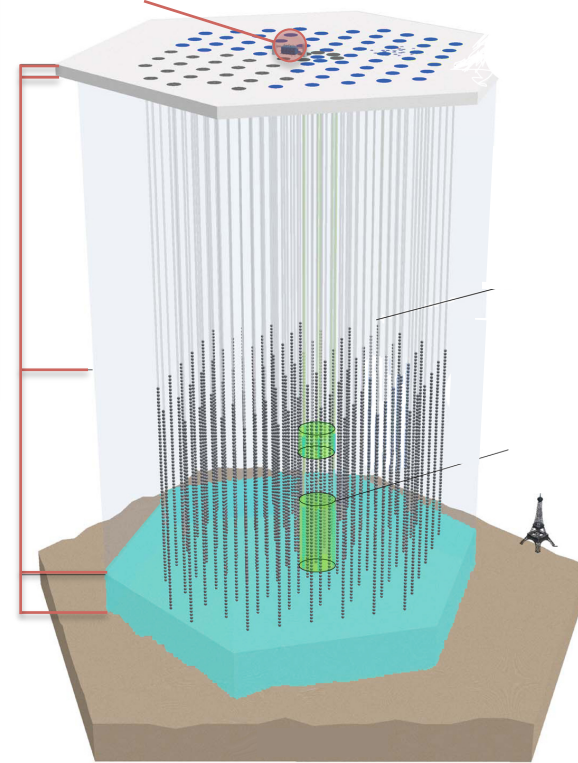




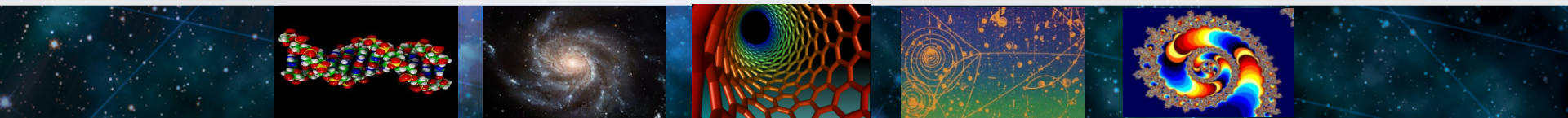
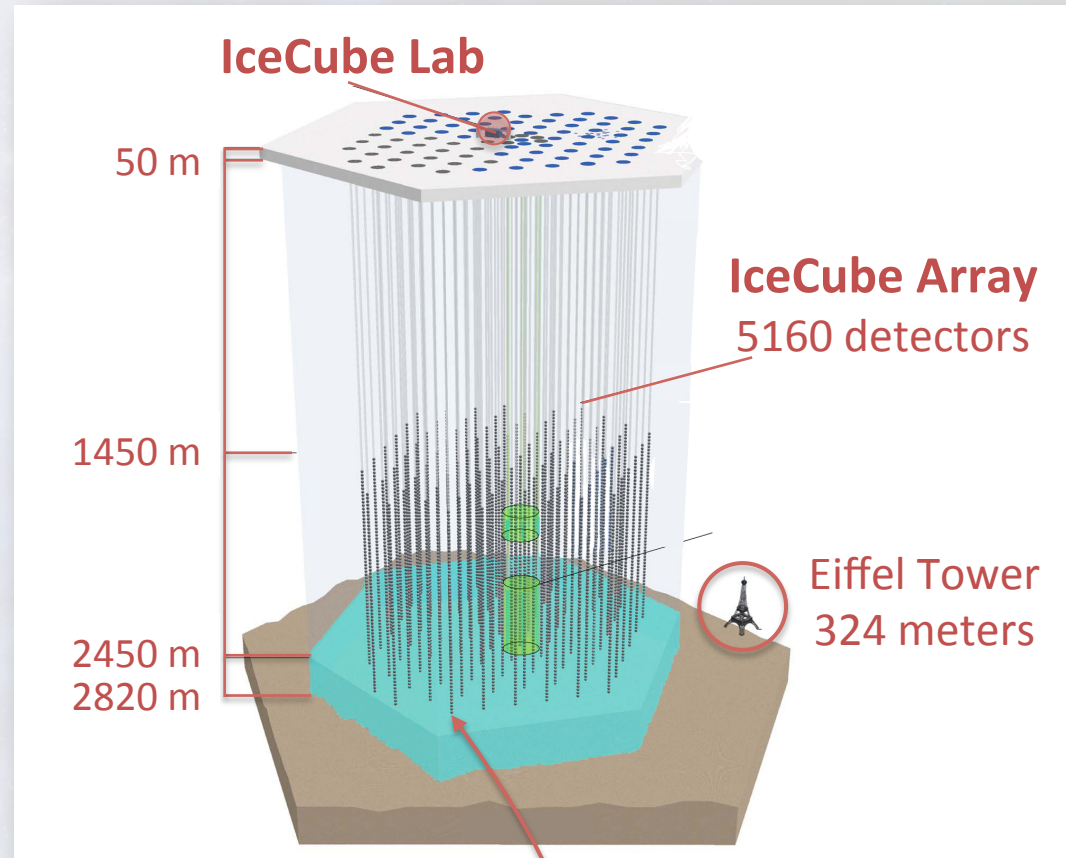
# IceCube Opens a New Era in Astrophysics Observation



IceCube Lab

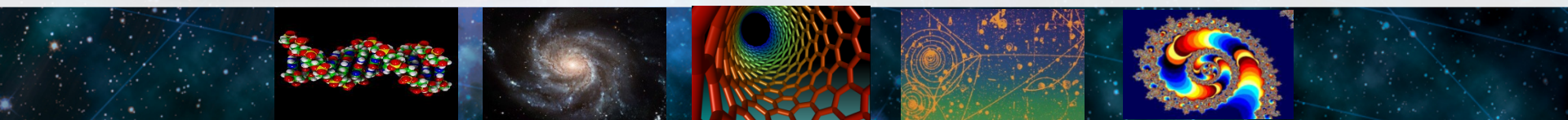
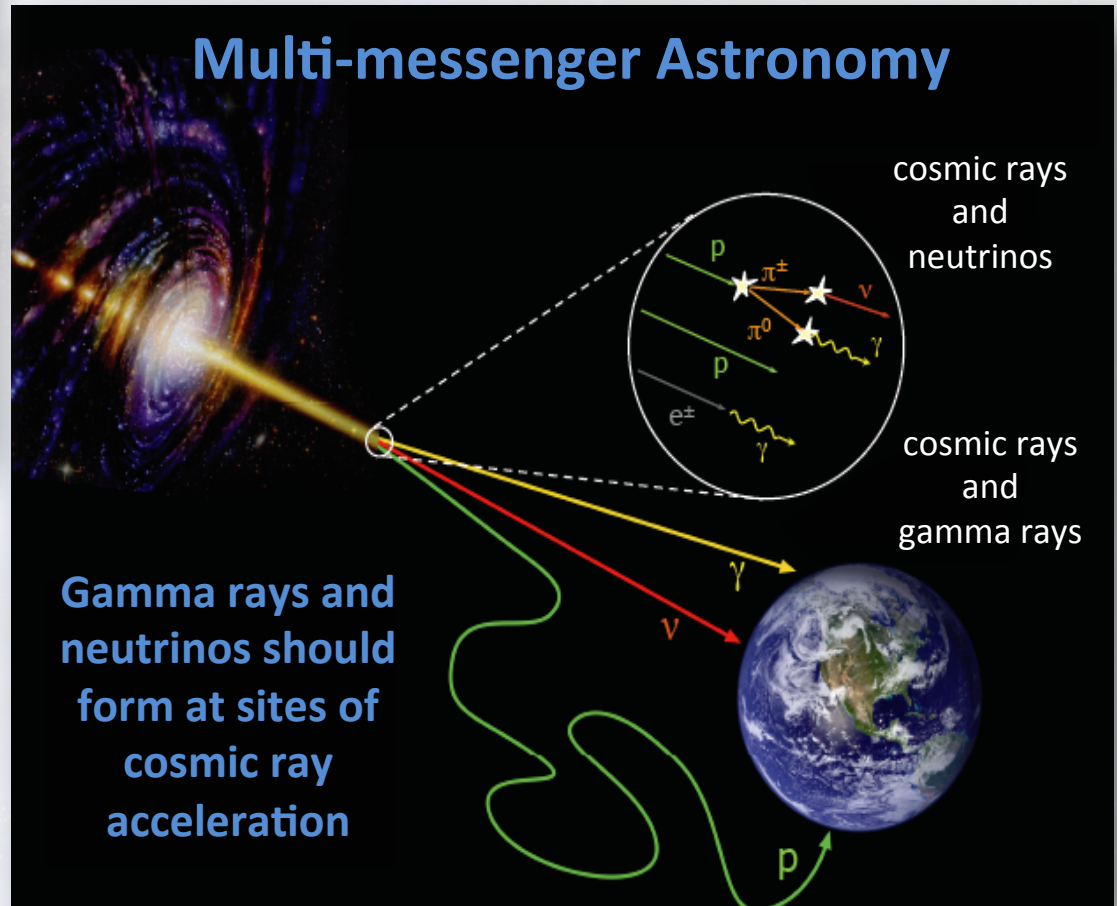
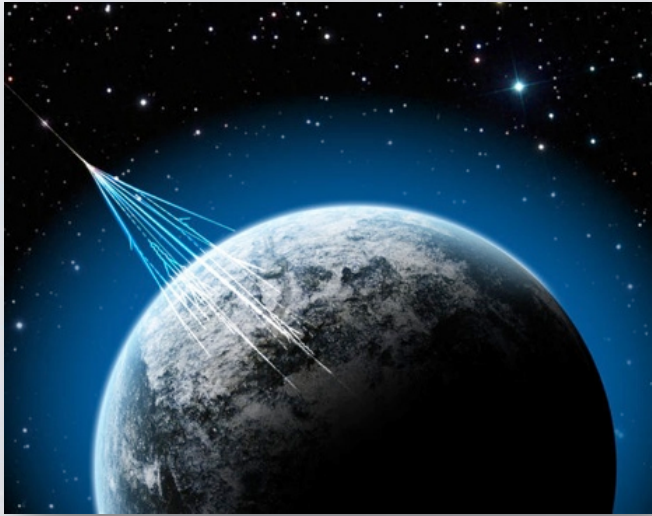


# IceCube Opens a New Era in Astrophysics Observation

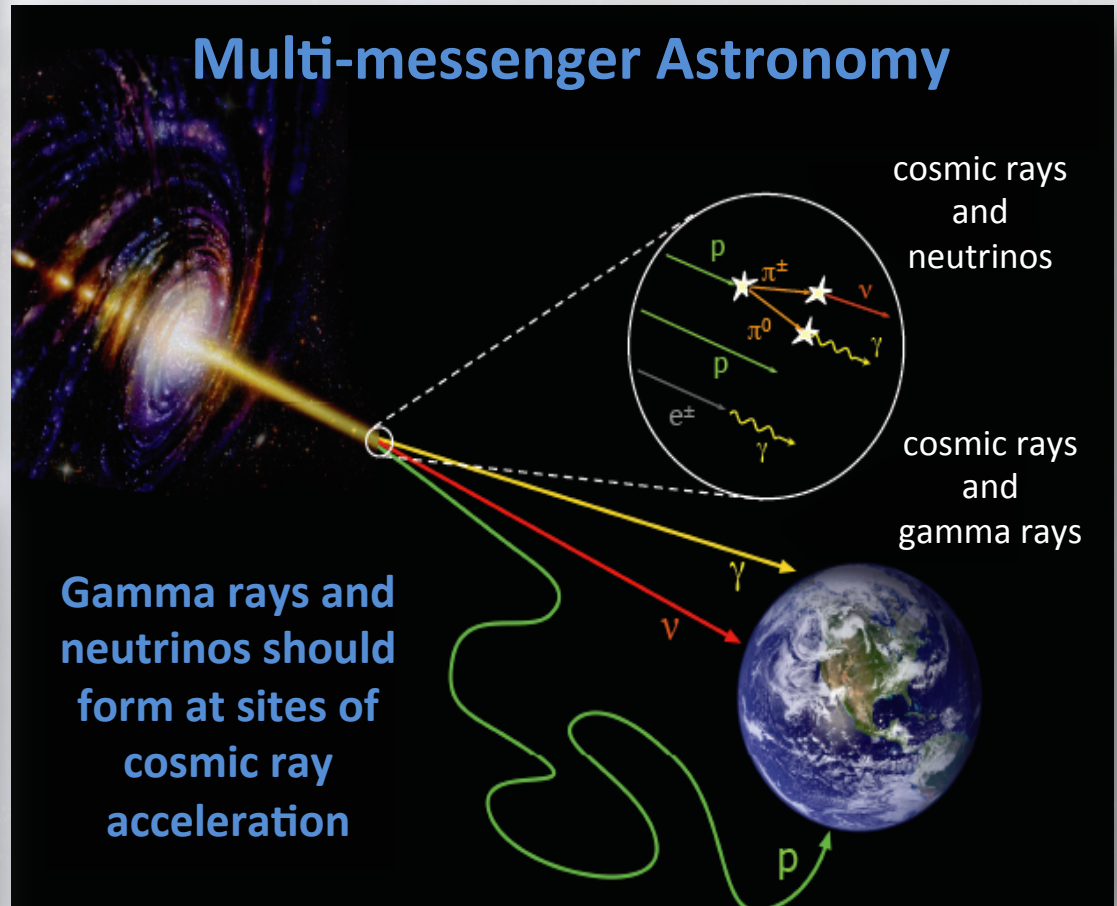
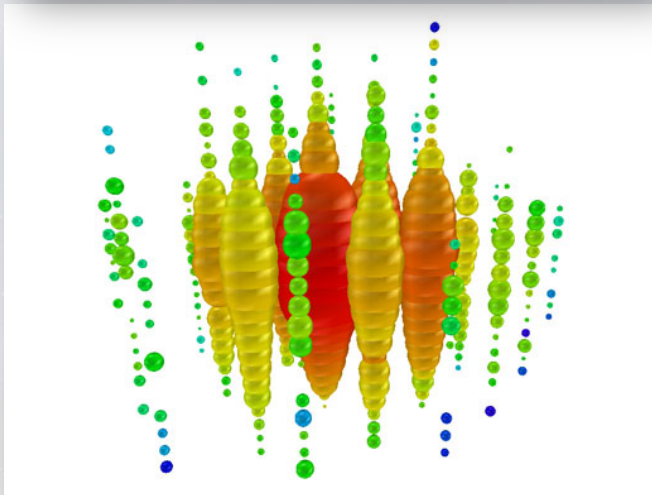
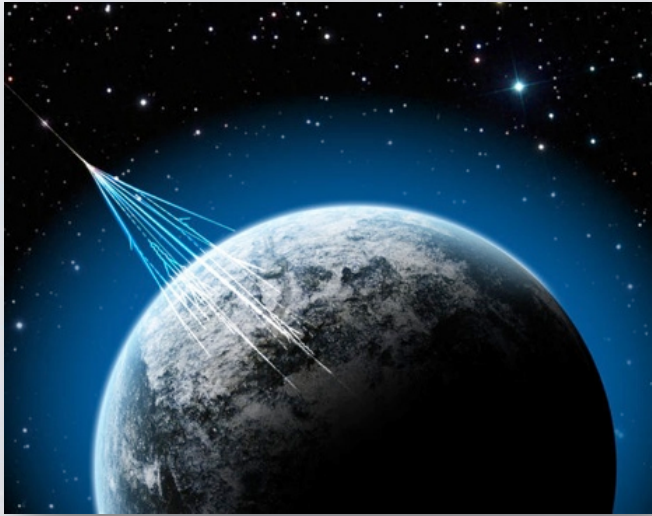




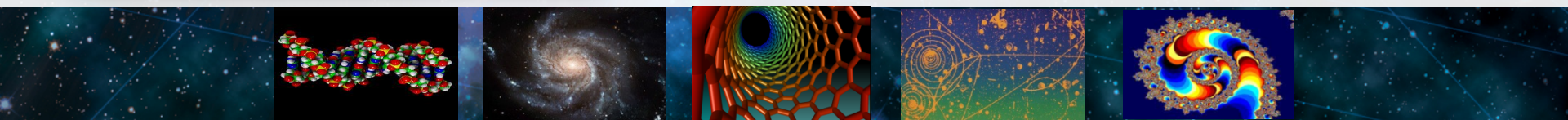
# IceCube Opens a New Era in Astrophysics Observation



# IceCube Opens a New Era in Astrophysics Observation

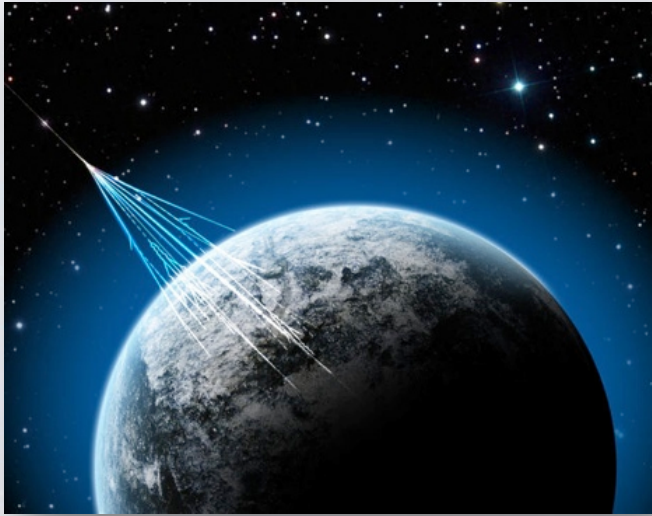


Phys. Rev. Letters **111**, 021103 (2013)





# IceCube Opens a New Era in Astrophysics Observation

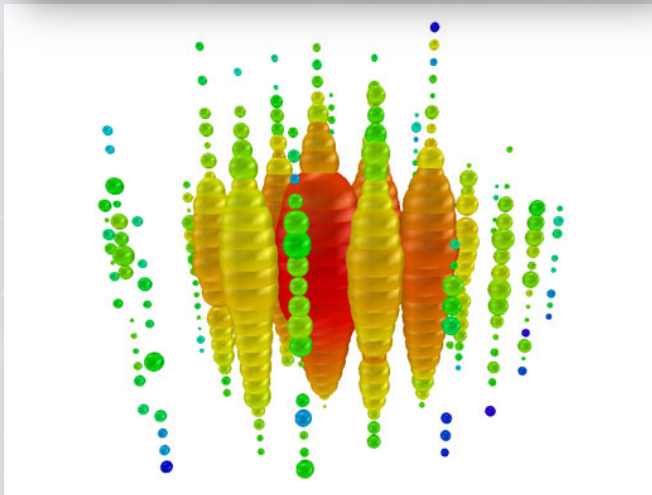


Observed neutrinos with energies of  
 $(1.04 \pm 0.16) \times 10^{15} \text{ eV}$   
 $(1.14 \pm 0.17) \times 10^{15} \text{ eV}$

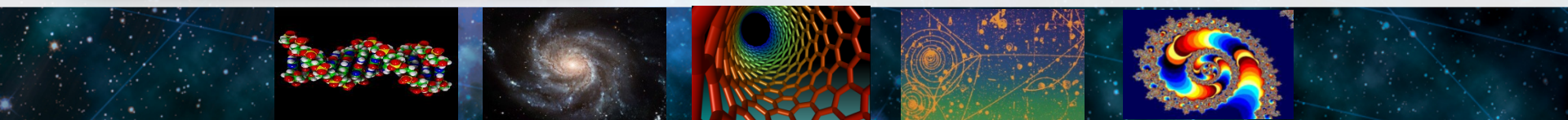
Energies are much higher than  
those of neutrinos from usual  
cosmic ray showers



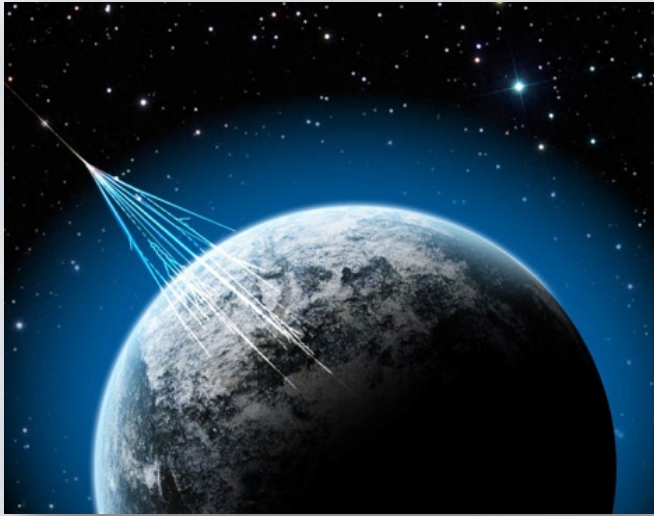
Origin in high energy events far away  
in our galaxy or even beyond



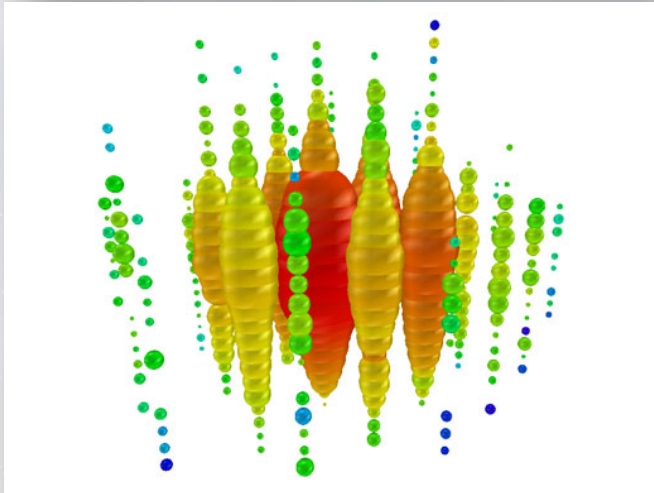
Phys. Rev. Letters **111**, 021103 (2013)



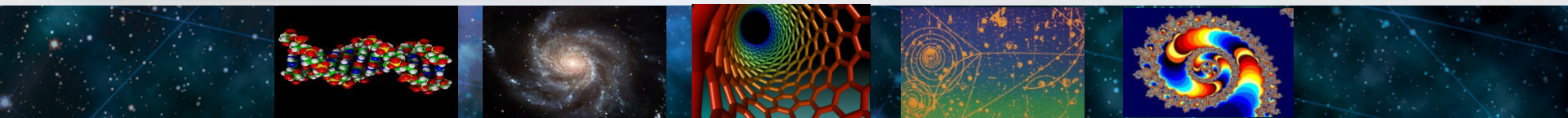
# IceCube Opens a New Era in Astrophysics Observation



More observations potentially identify galactic and extra-galactic sources of ultra-high energy cosmic phenomena



Phys. Rev. Letters **111**, 021103 (2013)





Personnel

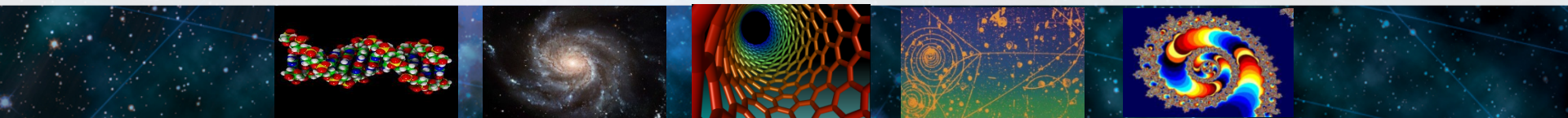
Program  
Updates

Budget

Focus on  
Discussion

Facilities

Agenda



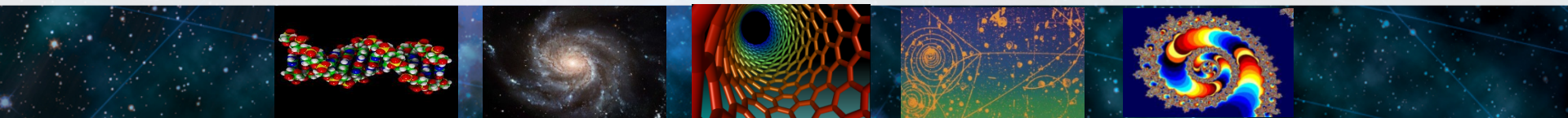
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# Changes to the MPS Advisory Committee

## New Chair

Juan de Pablo  
University of Chicago



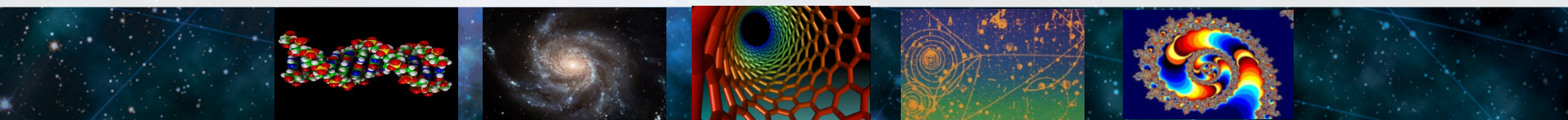
## Quarterly Meetings

(3 virtual)  
(1 at NSF)



**Rely on Subcommittees**  
(breadth, expertise)

**Goal: Efficient meetings and good advice**



## Division Leadership



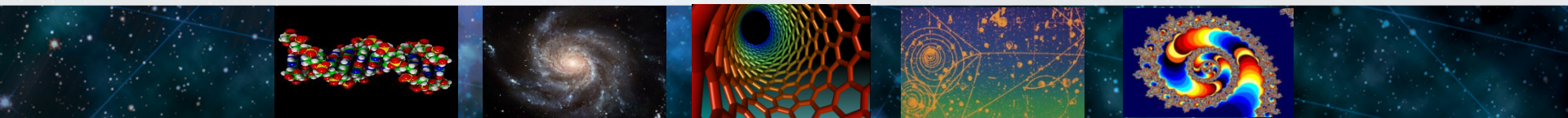
**Jim Ulvestad**  
**Term Extended**  
**AST DD**



**Denise Caldwell**  
**PHY DD**



**Jackie Gervay-Hague**  
**CHE DD**





# MPS Front Office Personnel



## Science Assistants

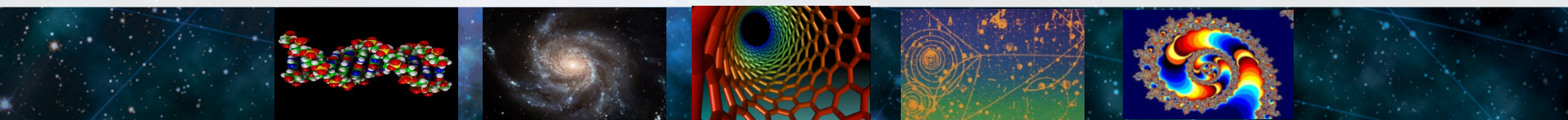
Caleb Autrey  
(began in May)

Abby Deift  
(leaving NSF, “replacement” in August)



## Staff Assistant

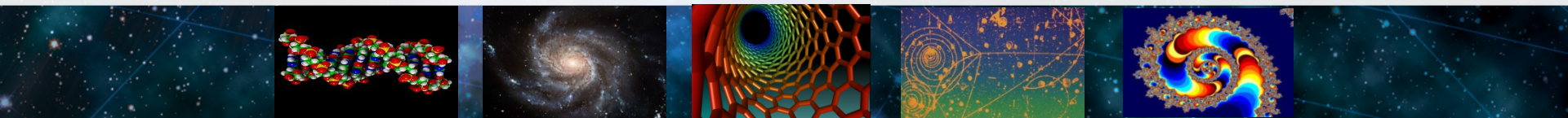
Renee Wilkerson  
(on detail from CHE)



# New Home for NSF (2017)



Alexandria, VA





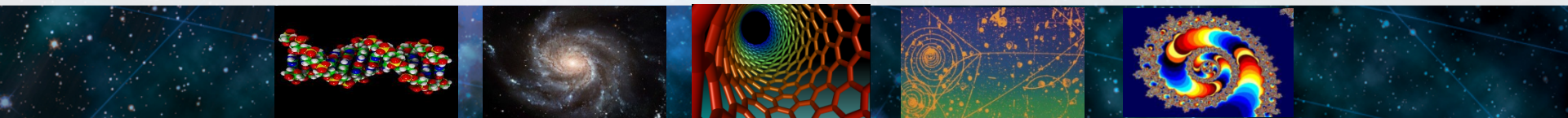
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## Sustainability (SEES) in FY14

## Added Focus for SusChEM Food Security

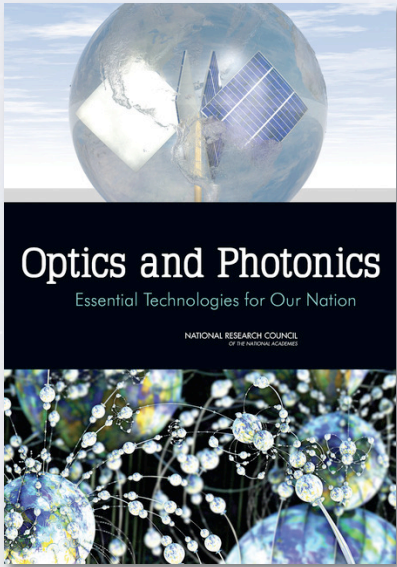
# Materials Genome Initiative (MGI)

# DMREF

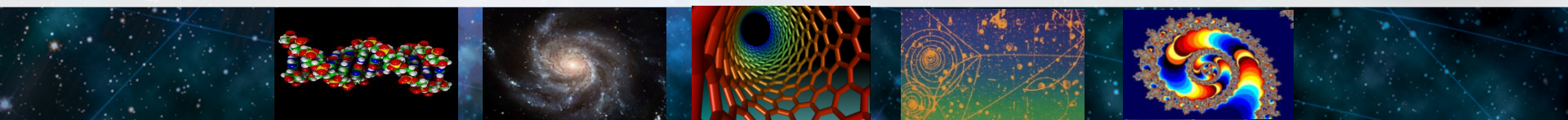
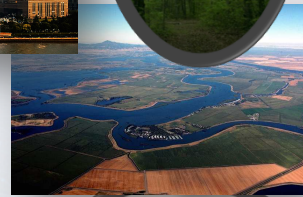
# NSTC MGI Coordination

# Optics and Photonics

**NSF-wide Working Group Report  
NSTC Fast-Track Action Committee  
MPS AC Subcommittee**



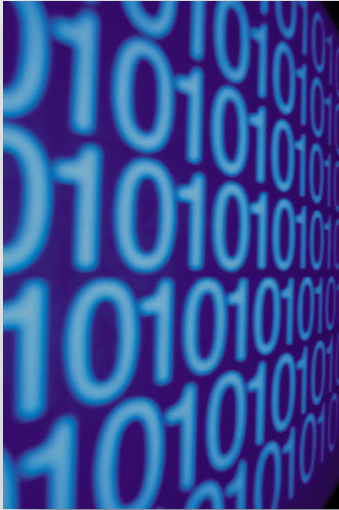
# NRC Report





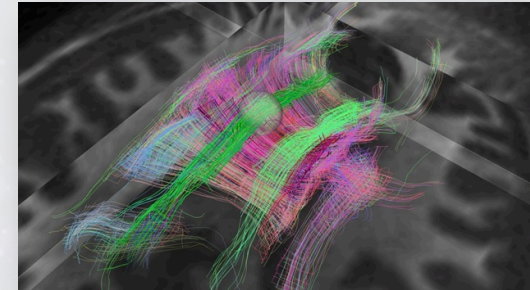
# Data and Simulation Science (CIF21)

Computational and Data-Enabled Science  
and Engineering (CDS&E)  
DIBBS, BIGDATA



## BRAIN and BioMAPS

President's BRAIN Initiative  
Interagency Working Group



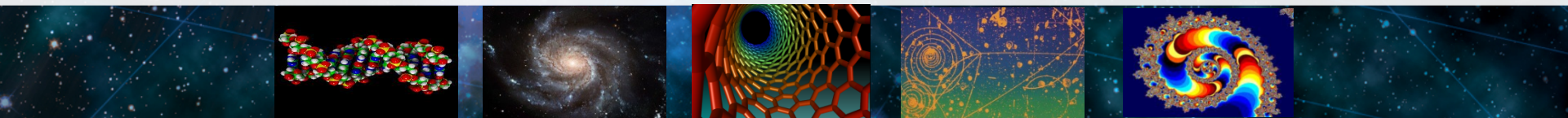
NSF Initiative  
"Understanding the Brain"

## Accelerator Science

New in FY14 Budget Request (PHY)

## Midscale Infrastructure

New in FY14 Budget Request (AST, PHY)



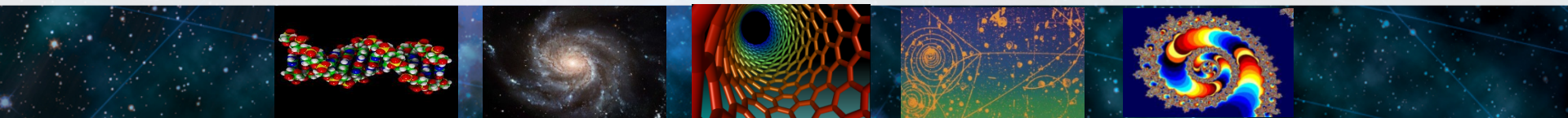
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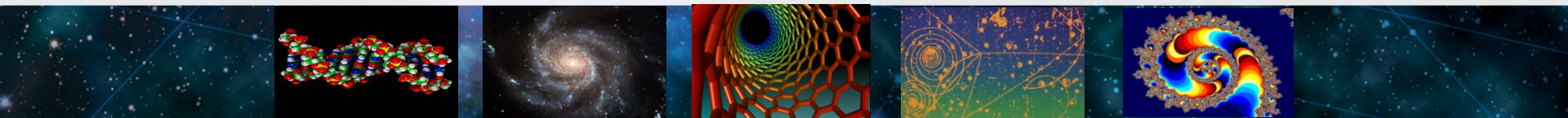
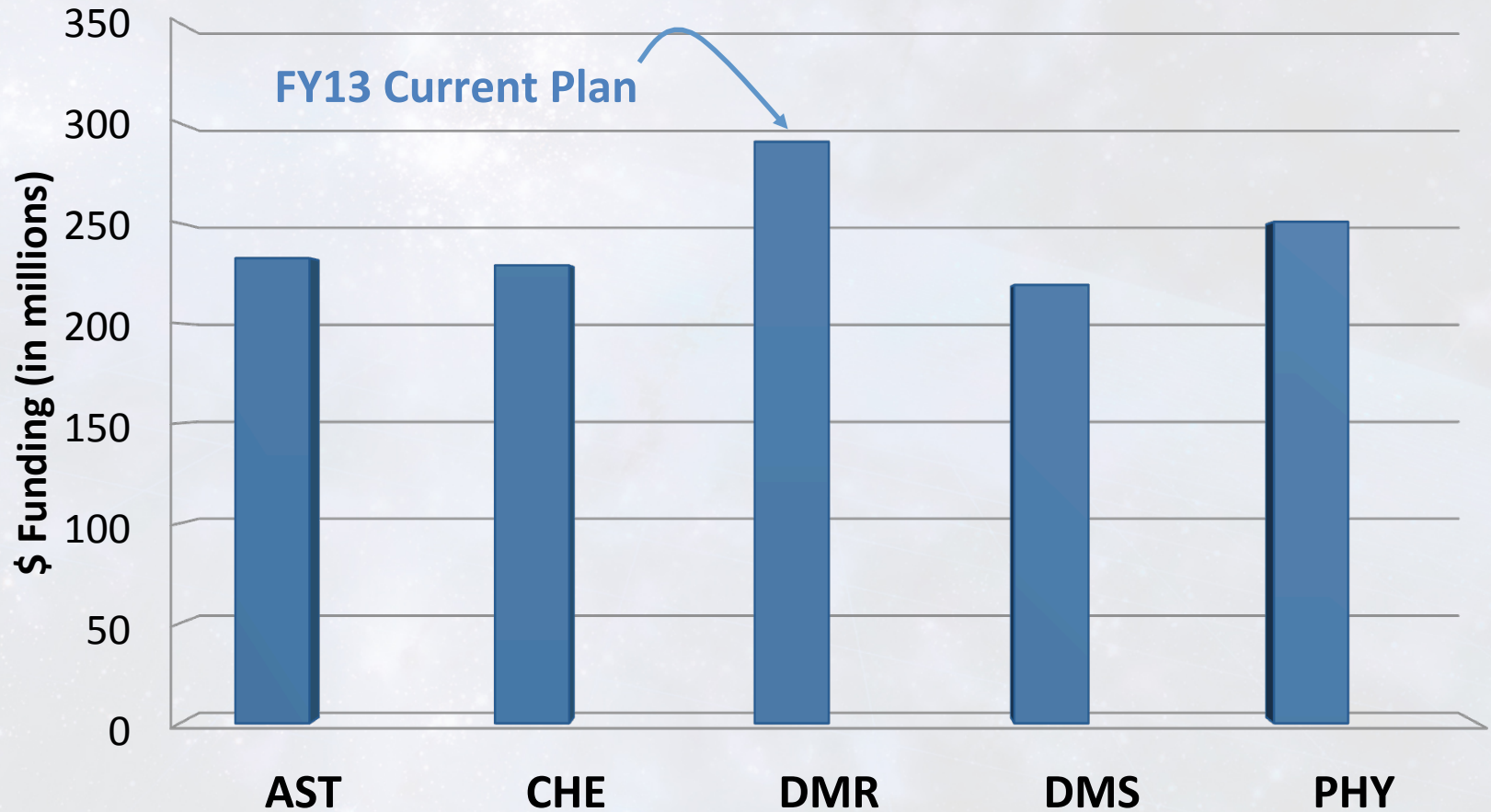
Agenda





## FY13 MPS

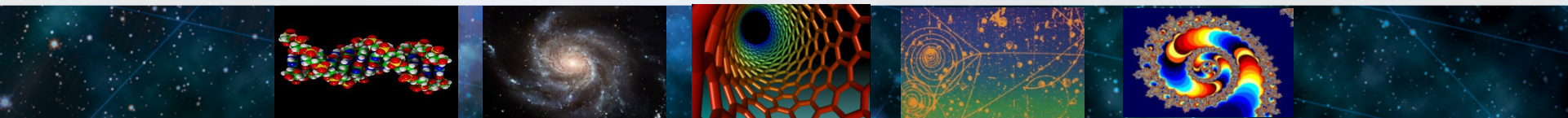
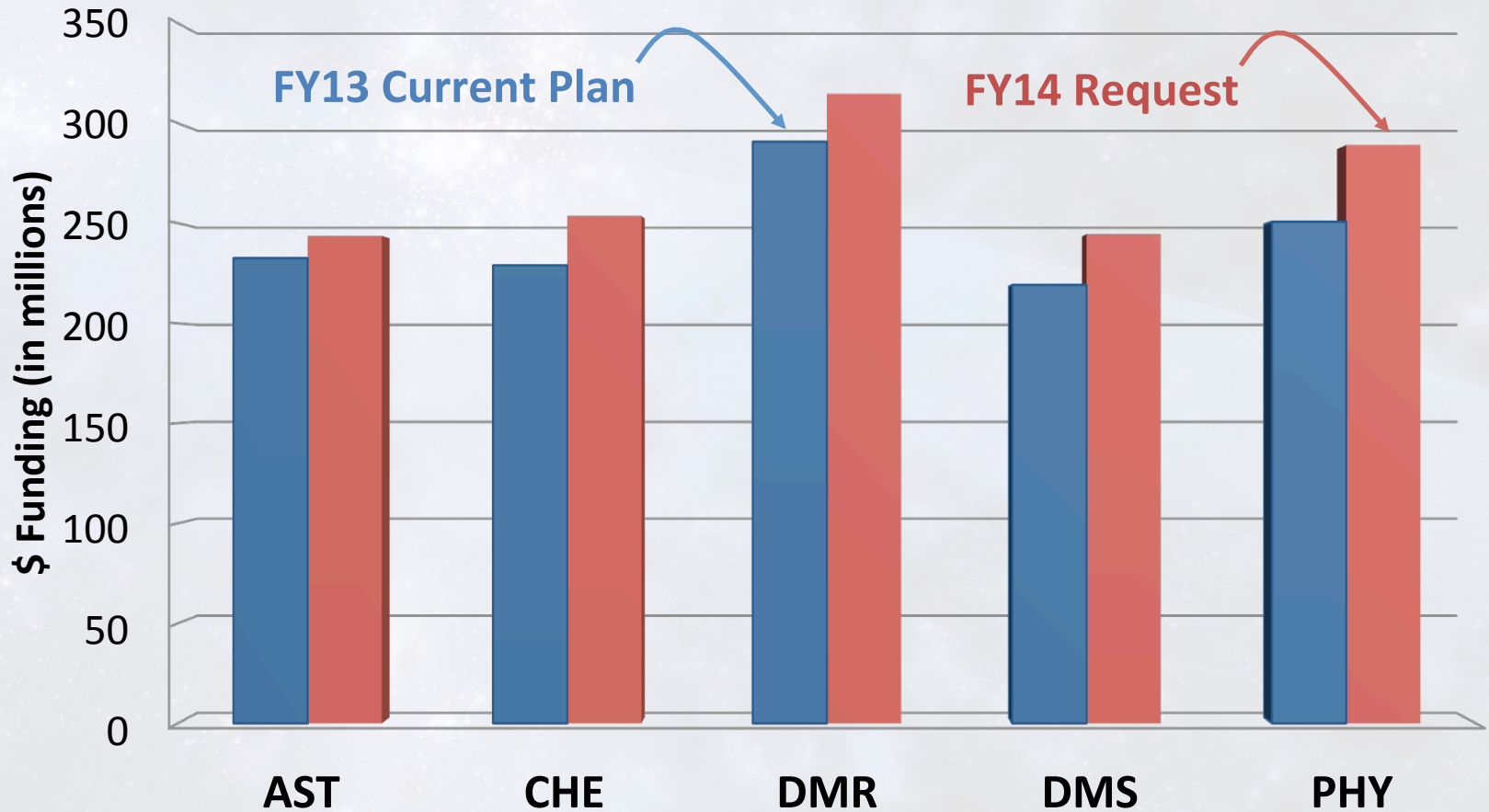
Current Plan: \$1.249 B



**FY13 MPS**  
**Current Plan: \$1.249 B**

**4.8%**  
→

**FY14 MPS**  
**Request: \$1.309 B**





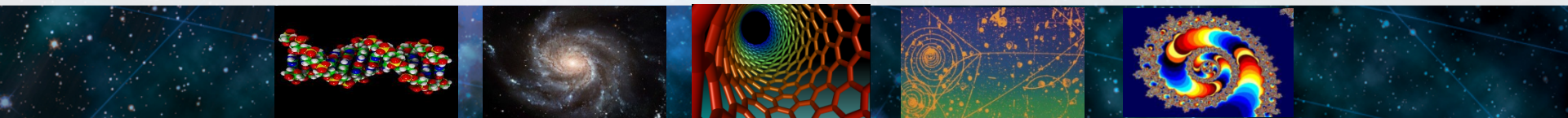
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# Cutting Edge Research Continues at MPS Facilities

## Astronomy

LSST construction

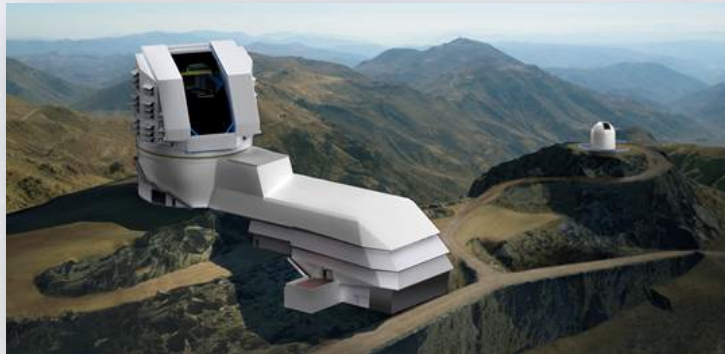
ATST rebaseline

NRAO Dear Colleague Letter

NOAO solicitation soon

ALMA inaugurated

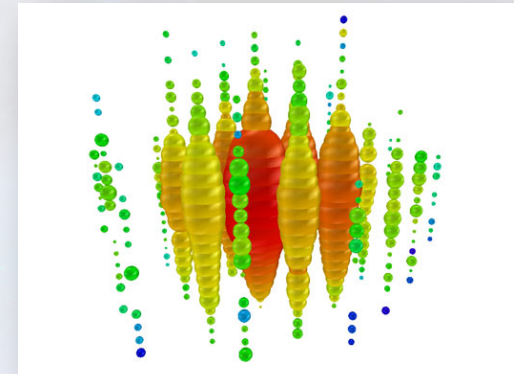
Green Bank visit



LSST Design

## Physics

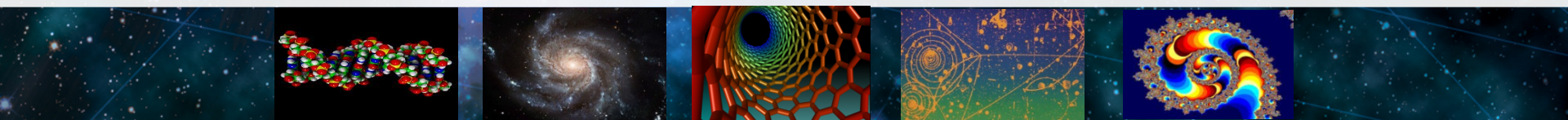
IceCube Results



## Materials Research

NRC Report on High Magnetic  
Field Research

MPSAC Subcommittee Working





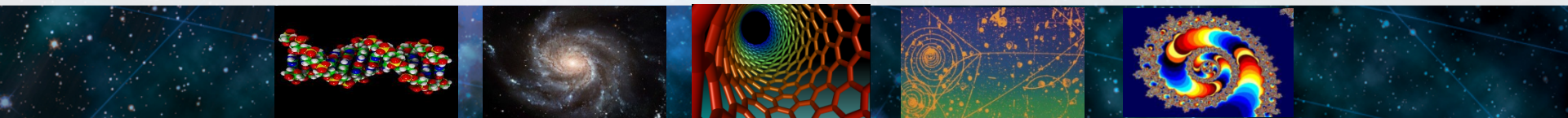
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# Highlights for Today

## MPSAC Subcommittee Reports

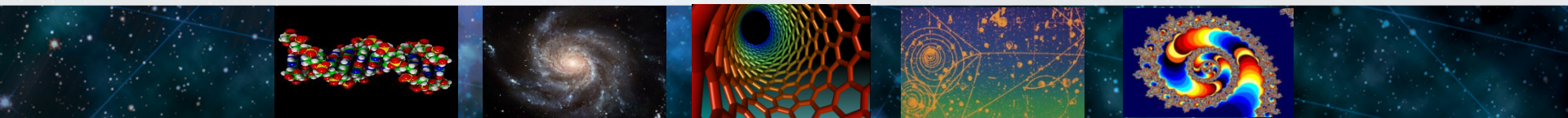
Stats NSF  
Optics and Photonics  
Food Systems  
Synchrotron Science

## Recent NRC Reports

Magnet Science  
Mathematical Sciences 2025

## Other NSF Activities

New Strategic Plan  
CAREER Task Force  
Advisory Committee for Cyberinfrastructure (ACCI)  
Materials Genome Initiative Workshop





Personnel

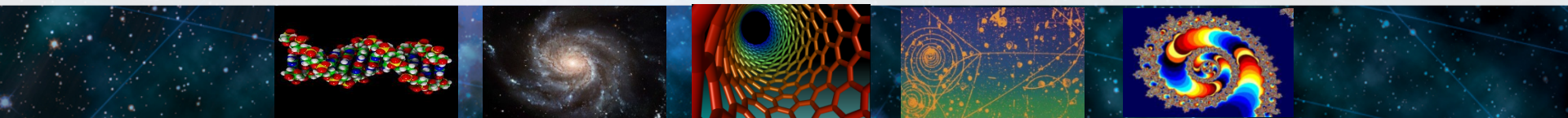
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# Goal: More Advice to MPS



Increase participation and engagement

Encourage more substantive outcomes

Foster multidisciplinary connections

Broaden community outreach

Build on successful models

